more apparent upon consideration of the following description and the appended claims, with reference to the accompanying drawings, all of which form a part of this disclosure, wherein like reference numerals designate corresponding parts in the various figures.

DESCRIPTION OF THE DRAWINGS

FIGURE 1 is a perspective view of an automated nucleic acid-based diagnostic analyzer according to the present invention;

FIGURE 2 is a perspective view of the structural frame of the analyzer of the present invention;

FIGURE 3 is a plan view of a portion of the assay processing deck of the analyzer of the present invention;

FIGURE 4 is an exploded perspective view of the assay processing deck;

FIGURE 5 is a plan view of a specimen ring and a pipette tip wheel of the assay processing deck of the analyzer of the present invention;

FIGURE 6 is a perspective view showing the specimen ring and the pipette tip wheel;

FIGURE 6A is a partial cross-sectional view along the line 6A-6A in FIGURE 5;

FIGURE 7 is a perspective view of a multi-axis mixer of the processing deck of the analyzer of the present invention;

FIGURE 8 is a plan view of the multi-axis mixer;

FIGURE 9 is a side elevation of the multi-axis mixer;

FIGURE 10 is a plan view of the multi-axis mixer with container holders and a turntable cover removed therefrom;

FIGURE 11 is a cross-sectional view of the multi-axis mixer taken in the direction 11-11 in FIGURE 10;

FIGURE 12 is a perspective view of a drive assembly of the multi-axis mixer;

FIGURE 13 is a perspective view of a transport mechanism of the processing deck of the analyzer of the present invention;

FIGURE 14 is a perspective view of a manipulating hook mounting plate and a manipulating hook actuating mechanism of the transport mechanism, with the manipulating hook member engaged with a reaction receptacle and in a retracted position;

FIGURE 15 is the same as FIGURE 14, except with the manipulating hook member in the extended position;

FIGURE 16 is an exploded perspective view of the transport mechanism;

FIGURE 17 is a side-elevation of a temperature ramping station of the processing deck of the analyzer of the present invention;

FIGURE 18 is a front-elevation of the temperature ramping station;

FIGURE 19 is a perspective view of a rotary incubator of the processing deck of the analyzer of the present invention;

FIGURE 20 is an exploded view of a portion of a housing and access opening closure mechanisms according to a first embodiment of the rotary incubator;

FIGURE 21 is a partial view of a skewed disk linear mixer of the rotary incubator, shown engaged with a reaction receptacle employed in a preferred mode of operation of the analyzer of the present invention;

FIGURE 22 is an exploded perspective view of the first embodiment of the rotary incubator;

FIGURE 23 is a perspective view of the rotary incubator according to a second embodiment thereof;

FIGURE 23A is an exploded perspective view of the second embodiment of the rotary incubator;

FIGURE 23B is a partial exploded perspective view of an access opening closure mechanism of the second embodiment of the rotary incubator;

FIGURE 23C is an exploded view of a receptacle carrier carousel of the second embodiment of the rotary incubator;

FIGURE 24 is a perspective view of a magnetic separation wash station of the processing deck of the present invention with a side plate thereof removed;

FIGURE 25 is a partial transverse cross-section of the magnetic separation wash station;

FIGURE 25A is a partial transverse cross-section of a tip of an aspirating tube of the magnetic separation wash station with a contamination-limiting tiplet carried on the end thereof;

FIGURE 26 is an exploded perspective view of a receptacle carrier unit, an orbital mixer assembly, and a divider plate of the magnetic separation wash station;

FIGURE 27 is a partial cross-sectional view of a wash buffer dispenser nozzle, an aspirator tube with a contamination-limiting tiplet engaged with an end thereof, and a receptacle carrier unit of the magnetic separation wash station, showing a multi-tube unit reaction receptacle employed in a preferred mode of operation of the analyzer carried in the receptacle

carrier unit and the aspirator tube and contamination-limiting tiplet inserted into a receptacle vessel of the multi-tube unit;

FIGURE 28 is a partial cross-sectional view of the wash buffer dispenser nozzle, the aspirator tube, and the receptacle carrier unit of the magnetic separation wash station, showing the multi-tube unit carried in the receptacle carrier unit and the aspirator tube engaging the contamination-limiting tiplet held in a contamination-limiting element holding structure of the multi-tube unit;

FIGURES 29A-29D show a partial cross-section of a first embodiment of a tiplet stripping hole of a tiplet stripping plate of the magnetic separation wash station and a tiplet stripping operation using the tiplet stripping hole;

FIGURES 30A-30D show a partial cross-section of a second embodiment of a tiplet stripping hole and a tiplet stripping operation using the tiplet stripping hole;

FIGURE 31A is a plan view of a third embodiment of a tiplet stripping hole of a tiplet stripping plate of the magnetic separation wash station;

FIGURES 31B-31C show a partial cross-section of the third embodiment of the tiplet stripping hole and a tiplet stripping operation using the tiplet;

FIGURE 32 is a perspective view of an orbital mixer with a front plate thereof removed;

FIGURE 33 is an exploded view of the orbital mixer of the processing deck of the analyzer of the present invention;

FIGURE 34 is a top-plan view of the orbital mixer;

FIGURE 35 is a top perspective view of a reagent cooling bay of the processing deck of the analyzer of the present invention;

FIGURE 36 is a top perspective view of a reagent cooling bay with the container tray removed therefrom;

FIGURE 37 is a bottom plan view of the reagent cooling bay;

FIGURE 38 is an exploded view of the reagent cooling bay;

FIGURE 39 is a top perspective view of a modular container tray of the reagent cooling bay;

FIGURE 40 is a perspective view of a first embodiment of a luminometer of the processing deck of the analyzer of the present invention;

FIGURE 41 is a partial exploded perspective view of the luminometer of the first embodiment;